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### AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application:

#### Listing of Claims:

1. (Currently Amended) A kneadable ~~Kneadable~~ and moldable bone-replacement material which consists of a mixture of:
  - A) calcium-containing ceramic particles; and
  - B) a hydrogel or a substance ~~which~~ that can be swelled into a hydrogel, and ~~characterised by the fact that~~ wherein:
  - C) the ceramic particles are of fully synthetic origin;
  - D) the individual ceramic particles have at least a partially cohesive, porous structure; and
  - E) the majority of the ceramic particles have a non-spheric shape.
2. (Currently Amended) The bone-replacement ~~Bone-replacement~~ material in accordance with claim 1, ~~characterised by the fact that~~ wherein the ceramic particles have an angular shape.
3. (Currently Amended) The bone-replacement ~~Bone-replacement~~ material in accordance with claim 1, ~~wherein or 2, characterised by the fact that~~ the ceramic particles have a sphericity relationship  $S = D_{\max}/D_{\min}$  between the ~~a~~

largest diameter Dmax and ~~the smallest~~ a smallest diameter Dmin which is larger than 1.2 ~~and preferably larger than 1.5.~~

4. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with claim 3, ~~characterised by the fact that~~wherein the sphericity relationship S is larger than 3 ~~and preferably larger than 5.~~

5. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—3, characterised by the fact that~~ claim 1, wherein at least 50% ~~and preferably at least 90%~~ of the ceramic particles have a non-spheric shape.

6. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with claim 1, wherein ~~a one of the claims 1—5, characterised by the fact that~~ the pore size of the ceramic particles is between 1 and 500 micrometers.

7. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—6, characterised by the fact that~~ claim 1, wherein at least 50% of the ceramic particles have a pore size between 100 and 500 micrometers.

8. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with claim 7, ~~characterised by the fact that~~wherein the pore size is between 1 and 100 micrometers.

9. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with claim 8, ~~characterised by the fact that~~wherein the pore size is between 340 and 450 micrometers.

10. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with ~~one of the claims 1—9~~, ~~characterised by the fact that~~the claim 1, wherein porosity of the ceramic particles is between 60 and 90 percent.

11. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with ~~one of the claims 1—10~~, ~~characterised by the fact that~~the claim 1, wherein a bulk density of the ceramic particles is between 0.2 g/ccm and 2.0 g/ccm.

12. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with ~~one of the claims 1—10~~, ~~characterised by the fact that~~the claim 1, wherein a bulk density of the ceramic particles is between 0.6 g/ccm and 1.0 g/ccm ~~and preferably between 0.7 g/ccm and 0.9 g/ccm~~.

13. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with ~~one of the claims 1—10~~, ~~characterised by the fact that~~

~~the claim 1, wherein a~~ bulk density of the ceramic particles is between 1.0 g/ccm and 2.0 g/ccm ~~and preferably between 0.2 g/ccm and 1.8 g/ccm.~~

14. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance ~~with one of the claims 1—13, characterised by the fact that~~ the claim 1, wherein a jarring density of the ceramic particles is between 0.5 g/ccm and 2.5 g/ccm.

15. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with claim 14, ~~characterised by the fact that~~ wherein the jarring density of the ceramic particles is between 0.7 g/ccm and 1.1 g/ccm.

16. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with claim 14, ~~characterised by the fact that the~~ wherein the jarring density of the ceramic particles is between 1.1 g/ccm and 2.5 g/ccm.

17. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—16, characterised by the fact that~~ the claim 1, wherein a share of ceramic particles of non-spheric shape is at least 60% ~~and preferably at least 80%.~~

18. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—17, characterised by the fact that~~

~~the claim 1, wherein an~~ average diameter of the ceramic particles is between 100 and 250 micrometers.

19. (Currently Amended) ~~The bone-replacement~~ Bone-replacement material in accordance with ~~one of the claims 1—17, characterised by the fact that~~ ~~the claim 1, wherein an~~ average diameter of the ceramic particles is between 250 and 500 micrometers.

20. (Currently Amended) ~~The bone-replacement~~ Bone-replacement material in accordance with ~~one of the claims 1—17, characterised by the fact that~~ ~~the claim 1, wherein an~~ average diameter of the ceramic particles is between 0.5 and 5.6 mm.

21. (Currently Amended) ~~The bone-replacement~~ Bone-replacement material in accordance with ~~one of the claims 18—20, characterised by the fact that~~ ~~that claim 18, wherein~~ ceramic particles with an average diameter of 100 to 250 micrometers are used together with those having an average diameter of 250 to 500 micrometers and/or together with those having an average diameter of 0.5 to 5.6 mm.

22. (Currently Amended) ~~The bone-replacement~~ Bone-replacement material in accordance with ~~one of the claims 1—21, characterised by the fact that~~ ~~the claim 1, wherein the~~ ceramic particles consist of a calcium-phosphate having ~~which is characterised by~~ a molar Ca/P relationship between 1.0 and 2.0.

23. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with claim 22, ~~characterised by the fact that wherein~~ the ceramic particles consist of a calcium-phosphate ~~which is characterised by having~~ a molar Ca/P relationship between 1.45 and 1.52.

24. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with claim 22, ~~characterised by the fact that wherein~~ the ceramic particles consist of a calcium-phosphate ~~which is characterised by having~~ a molar Ca/P relationship between 1.45 and 1.49.

25. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with ~~one of the claims 22- 24,~~ characterised by the fact ~~that~~claim 22, wherein the calcium phosphate is selected from the following group:  
Dicalcium-phosphate-dihydrate ( $\text{CaHPO}_4 \times 2 \text{H}_2\text{O}$ ), dicalcium-phosphate ( $\text{CaHPO}_4$ ), alpha-tricalcium-phosphate ( $\alpha\text{-Ca}_3(\text{PO}_4)_2$ ), beta-tricalcium-phosphate ( $\beta\text{-Ca}_3(\text{PO}_4)_2$ ), calcium-deficient hydro-xyapatite ( $\text{Ca}_9(\text{PO}_4)_5(\text{HPO}_4)\text{OH}$ ), hydro-xyapatite ( $\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2$ ), carbonated apatite ( $\text{Ca}_{10}(\text{PO}_4)_3(\text{CO}_3)_3(\text{OH})_2$ ), fluoride-apatite ( $\text{Ca}_{10}(\text{PO}_4)_6(\text{F},\text{OH})_2$ ), chloride-apatite ( $\text{Ca}_{10}(\text{PO}_4)_6(\text{Cl},\text{OH})_2$ ), whitlockite ( $(\text{Ca},\text{Mg})_3(\text{PO}_4)_2$ ), tetracalcium-phosphate ( $\text{Ca}_4(\text{PO}_4)_2\text{O}$ ), oxyapatite ( $\text{Ca}_{10}(\text{PO}_4)_6\text{O}$ ), beta-calcium-pyrophosphate ( $\beta\text{-Ca}_2(\text{P}_2\text{O}_7)$ ), alpha-calcium-pyrophosphate, gamma-calcium-pyrophosphate, octo-calcium-phosphate ( $\text{Ca}_8\text{H}_2(\text{PO}_4)_6 \times 5 \text{H}_2\text{O}$ ).

26. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—25, characterised by the fact that~~claim 1, wherein the ceramic particles consist of a mixture of different calcium-phosphates.

27. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—21, characterised by the fact that~~claim 1, wherein the ceramic particles consist of a calcium-sulfate.

28. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—21, characterised by the fact that~~claim 1, wherein the ceramic particles consist of a calcium-carbonate.

29. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—21, characterised by the fact that~~claim 1, wherein the ceramic particles are selected from the following group: alpha-calcium-sulfate-hemihydrate, beta-calcium-sulfate-hemihydrate, calcium-sulfate-dihydrate.

30. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—21, characterised by the fact that~~claim 1, wherein the ceramic particles consist of a mixture of different calcium-phosphates, calcium-sulfates and/or calcium-carbonates.

31. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—21, characterised by the fact that it~~ claim 1, further comprising ~~contains~~ metallic or semi-metallic ion shares as additives.

32. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—31, characterised by the fact that~~ claim 1, wherein the hydrogel or the substance which can be swelled into a hydrogel consists of fully synthetic substances.

33. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—31, characterised by the fact that~~ claim 1, wherein the hydrogel or the substance which can be swelled into a hydrogel consists of natural biological substances, preferably of plant origin.

34. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—31, characterised by the fact that~~ claim 1, wherein the hydrogel or the substance which can be swelled into a hydrogel consists of a biotechnologically generated substance.

35. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 32—34, characterised by the fact that~~ claim 32, wherein the hydrogel or the substance which can be swelled into a hydrogel consists of a mixture of fully synthetic, natural biological or biotechnologically generated substances.



36. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with ~~one of the claims 1—35, characterised by the fact that~~claim 1, wherein the hydrogel or the substance which can be swelled into a hydrogel contains one of the following components: a) polyamino-acids or their derivatives, preferably polylysine or gelatin; b) polysaccharides and their derivatives, preferably glycosaminoglycane or alginate; c) polylipides, fatty acids and their derivatives; d) nucleotides and their derivatives; or a combination of the components as listed in a) through d).

37. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with ~~one of the claims 1—35, characterised by the fact that~~claim 1, wherein the hydrogel or the substance which can be swelled into a hydrogel contains one of the following components: a) polymethylenoxide or its derivatives; b) polyethylene, polyethylenoxide or their derivatives; c) polypropylene, polypropylenoxide or their derivatives; d) polyacrylate or its derivatives; or a combination of the components as listed in a) through d).

38. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with ~~one of the claims 1—37, characterised by the fact that~~claim 1, wherein the hydrogel or the substance which can be swelled into a hydrogel consists of either a glycosaminoglycane or a proteoglycane or a mixture of those two substances.

39. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with claim 38, ~~characterised by the fact that wherein the~~ glycosaminoglycane is a hyaluron-acid, chondroitinsulfate, dermatansulfate, heparansulfate, heparine or keratansulfate.

40. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with ~~one of the claims 1—39, characterised by the fact that~~ claim 1, wherein the a concentration of the ready-to-use, hydrated hydrogel or ~~the a~~ ready-to-use, hydrated substance which can be swollen into a hydrogel is between 0.1% and 20.0%.

41. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with ~~one of the claims 1—40, characterised by the fact that~~ claim 1, wherein a the molecular weight of the hydrogel or the substance which can be swelled into a hydrogel is larger than ~~300'000~~300,000 Dalton and preferably larger than ~~500'000~~500,000 Dalton.

42. (Currently Amended) ~~The bone-replacement~~Bone-replacement material in accordance with claim 41, ~~characterised by the fact that wherein the~~ molecular weight of the hydrogel or the substance which can be swelled into a hydrogel is larger than ~~1'000'000~~1,000,000 Dalton and preferably larger than ~~1'500'000~~1,500,000 Dalton.

43. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—42,~~ characterised by the fact that claim 1, wherein the hydrogel is a liquid solution of a hyaluronate.

44. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with claim 43, ~~characterised by the fact that~~ wherein the liquid solution of the hydrogel contains less than 99% water and ~~preferably less than 98% water.~~

45. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with claim 43, ~~characterised by the fact that~~ wherein the liquid solution of the hydrogel contains less than 96.5% water and ~~preferably less than 95% water.~~

46. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 43—45,~~ characterised by the fact that claim 43, wherein the molecular weight of the hyaluron-acid used is larger than  $1.5 \times 10^6$  Dalton.

47. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 43—45,~~ characterised by the fact ~~that~~claim 43, wherein the molecular weight of the hyaluron-acid used is between  $0.5 \times 10^6$  and  $1.0 \times 10^6$  Dalton.

48. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 43—45, characterised by the fact that~~ claim 43, wherein the molecular weight of the hyaluron-acid used is smaller than  $1 \times 10^6$   ~~$10^6$~~  and preferably smaller than  $0.5 \times 10^6$   ~~$10^6$~~  Dalton.

49. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—48, characterised by the fact that~~ claim 1, wherein ~~a~~ the specific gravity of the calcium-containing, porous ceramic particles is between 0.5 and 1.0 g/ccm.

50. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with ~~one of the claims 1—49, characterised by the fact that~~ claim 1, wherein ~~the~~ weight relationship A/B between the hydrated hydrogel and the calcium-containing ceramic particles is larger than 0.2.

51. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with claim 50, ~~characterised by the fact that~~ wherein the weight relationship A/B is between 0.2 and 0.5.

52. (Currently Amended) The bone-replacement~~Bone-replacement~~ material in accordance with claim 50, ~~characterised by the fact that~~ wherein the weight relationship A/B is between 0.5 and 0.9.

53. (Currently Amended) ~~The bone-replacement~~ Bone-replacement material in accordance with claim 50, ~~characterised by the fact that~~ wherein the weight relationship A/B is between 0.9 and 1.3.

54. (Currently Amended) ~~The bone-replacement~~ Bone-replacement material in accordance with claim 50, ~~characterised by the fact that~~ wherein the weight relationship A/B is between 1.3 and 2.0.

55. (Currently Amended) ~~The bone-replacement~~ Bone-replacement material in accordance with claim 50, ~~characterised by the fact that~~ wherein the weight relationship A/B is between 2 and 5.

56. (Currently Amended) ~~The bone-replacement~~ Bone-replacement material in accordance with claim 50, ~~characterised by the fact that~~ wherein the weight relationship A/B is larger than 5.